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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,233	06/09/2006	Thomas McQuiggin Lowes	1717198	8664

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EXAMINER	
WILSON, GREGORY A	

ART UNIT	PAPER NUMBER
3749	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,233	LOWES, THOMAS MCQUIGGIN	
	Examiner	Art Unit	
	Gregory A. Wilson	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45 and 47-61* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22,27-45 and 47-61* is/are rejected.

7)☒ Claim(s) *23-26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-4, 9-16, 18, 21, 22, 27-39, 42-45, 47, 48, and 51-61 are rejected under 35 U.S.C. 102(e) as being anticipated by **Hansen et al (6,672,865). Hansen et al** a kiln system (10) for mixing process gas flow that flows through housing (12) of an exhaust gas bypass system (SEE Figures 1-4) including a precalciner and riser duct, wherein the kiln system is for preparing cement clinker (SEE Summary of Invention) and has a gas temperature between 850-1400 degrees Celsius (SEE column 13, lines 27-38) and

includes a plurality of injectors (32) arranged at angles of between 0 to 60 degrees at predetermined intervals around the cross section of the interior of the housing (SEE Figure 6) and are connected to a gas supply system (34) which includes a fan, blower or compressor which is operable to feed pressurized air (or preheated) of high energy/velocity (a jet), to the injectors to produce rotational momentum in the kiln gas stream to dissipate stratification (column 9, lines 23-35) such that kiln gas is entrained in the injected gas along the axis of the housing, a combination of the position of the injectors within the kiln system and the nozzles (36) (SEE Figures 8a & 8b shows end portions with slots functioning as vanes or bluff bodies since they consist of a flattened front) aid in imparting the rotational momentum (swirling) and as can be seen in the Figures 8a & 8b have angles which anticipate the applicants claim 4 and the injectors are capable of impinging tangentially on an imaginary circle which forms towards the center of the housing as suggested by the flow shown in Figure 6 of high pressure air exiting the nozzles (36). Based off the illustration of Figure 6, a person having ordinary skill in the art would recognize and conclude that at least 10 percent of the cross sectional area of the housing is covered by the circle of air flow, additionally the claims directed to the velocity of the injection gas as measured in Reynolds Number or the frequency of turbulence or the calculation in which these values are determined are not novel limitations which cannot be performed by the structure of Hansen et al.

Claims 1, 2, 10-14, 21, 22, 27, 29-37, 44, 45 and 57-61 are rejected under 35 U.S.C. 102(b) as being anticipated by **JP (05 223228A). JP 05 223228A** discloses a

rotary drum furnace (SEE Figure 1a) for incinerating city refuse and industrial waste and is suitable for use in a precalciner of a kiln system, exhaust system for a kiln, a preheater section and a gas rising duct of a kiln system wherein the gas temperature is between 1000-1250 degrees C and includes a plurality of injectors (3) arranged around the housing and connected to an air supply system wherein the injectors are positioned such that they impinge tangentially on a circle (SEE Figure 1b) centered on the axis of process gas flow to entrain gas flow in a swirling motion. The injectors are arranged in such a way that they cover 5-15 percent of the cross sectional area of combustion gas flow and are directed at an angle of between 25 to 40 degrees.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5, 7, 8, 17, 19, 20, 40, 41, 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hansen et al (6,672,865). Hansen et al** discloses the applicants primary inventive concept as stated above including a system for mixing a process gas flow that is flowing through the housing of a kiln system including injectors (32) for supplying pressurized gas into the interior of the housing. As previously stated, the injectors have a portions with slots wherein a flattened front (Figures 8a & 8b) serve as vanes or bluff bodies and work in combination to the angle in which the injectors are

set to create a rotational momentum. Hansen et al does not teach flare diffusers provided in the injector, however, it would have been obvious to design the injectors to use flare diffusers instead of a bluff body or vane or in addition to these elements since when it comes to diverting a flow of gas to a swirling motion, vanes, bluff bodies and flare diffusers are regarded as art recognized equivalents and a person having ordinary skill in the art would have found it an obvious modification to exchange any of these elements for the other.

Allowable Subject Matter

Claims 23-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 10/22/08 have been fully considered but they are not persuasive. Applicant argues that neither Hansen et al (6,672,865) nor Japanese Patent JP (05223228A) anticipate the invention as claimed, and Hansen fails to render the invention obvious. The applicants cites in the description of the present invention (page 26, lines 15-18; page 27, lines 4-11; and page 30, lines 4-6), the provision of swirling means that induce swirl in the injected gases enchances entrainment of the process gas flow. The applicant furthermore notes that the cited art only teaches jets of injected air being directed in such a way as to cause rotational movement of gases

about the longitudinal axis of the kiln, concluding that the cited art does not teach that ***the jets of injected air are caused to rotate about their own axes of injection***. The examiner respectfully disagrees and makes note that the jets of injected air being caused to rotate about their own axes of injection is not a limitation of the claims. According to the applicants claims, the injector are arranged to inject the injection gas into the housing [at sufficiently high momentum to produce a jet with turbulent flow characteristics for entraining gas flow] which constitutes functional language wherein the examiner has provided structure capable of performing the function of the applicants invention, the injector is also provided with a swirling means which is anticipated by Hansen et al in that its injectors (of Figures 8a & 8b) are capable of providing swirling means which are axial, the swirling means are inherent depending on the direction of the slots and are evidenced in Figures 5-7 which shows various being stages of swirling. The swirling rotation of the jets that are produced are capable of providing movement (including rotational movement) to the jets of various types depending on the angle in which the slots are presented. With regards to JP 5223228, the reference discloses a dry zone (1) and a separate combustion zone (2) where secondary air is blown in such a fashion that it may form a swirling current, as stated above, the applicant has not included the limitation that the injected air is caused to rotate about its own axes of injection, in the claims, and thus JP 5223228 discloses structure intrinsic to the function of the applicants disclosed invention.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory A. Wilson whose telephone number is (571)272-4882. The examiner can normally be reached on 7 am - 4:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gregory A. Wilson/
Primary Examiner, Art Unit 3749
January 15, 2009